

AMENDMENTS TO THE CLAIMS

Claims 1-38 are currently pending in the Application. Claims 1, 18, and 27-30 are currently amended to clarify the claimed invention as embodied in these claims, without acquiescence or prejudice to pursue the original claims in a related application. A complete listing of the current pending claims is provided below and supersedes all previous claims listing(s). No new matter has been added.

1. (Currently Amended) A method for debugging an electrical electronic design having comprising both an HDL portion and a general programming language portion, comprising:

interrupting a simulator that operates upon the HDL portion of the electronic design to allow for debugging of the HDL portion, the simulator interrupted by an external debugger, ~~the external debugger debugging to debug~~ the general programming language portion of the electronic design;

handling a simulator request with the external debugger for the simulator that is interrupted, the external debugger calling a request processing function at the simulator, the simulator request for simulation of the HDL portion;

executing the request processing function at the simulator to respond to the simulator request; and

generating debug results based upon executing the request processing function and storing the debug results in a computer-readable medium.

2. (Original) The method of claim 1 in which the simulator request accesses a portion of the HDL portion.
3. (Original) The method of claim 2 in which the simulator request accesses HDL signal values.
4. (Original) The method of claim 2 in which the simulator request accesses HDL design hierarchy.
5. (Original) The method of claim 1 in which the simulator request operates simulator functionality.
6. (Original) The method of claim 1 in which the general programming language portion comprises C, C++, or SystemC code.
7. (Original) The method of claim 1 in which the HDL portion comprises VHDL or Verilog.
8. (Original) The method of claim 1 in which the action of having the external debugger call the request processing function is based upon recognition of a waiting simulator request.
9. (Original) The method of claim 8 in which recognition of the waiting simulator request is based upon a message sent to the external debugger.
10. (Original) The method of claim 8 in which recognition of the waiting simulator request is based upon a periodic check of a simulator request wait queue.

11. (Original) The method of claim 8 in which recognition of the waiting simulator request is based on whether a threshold number of simulator requests are waiting in a simulator request wait queue.
12. (Original) The method of claim 1 in which the simulator request is generated at a simulator GUI.
13. (Original) The method of claim 12 in which the response to the simulator request is displayed at the simulator GUI.
14. (Previously Presented) The method of claim 1, wherein the external debugger that calls the request processing function at the simulator is a gdb debugger.
15. (Original) The method of claim 1 in which the simulator request is routed through a debugger GUI for the external debugger.
16. (Original) The method of claim 1 in which the simulator request is directly routed to the external debugger.
17. (Original) The method of claim 1 in which the request processing function is set up ahead of time at the simulator to handle anticipated simulator requests.
18. (Currently Amended) A method for processing of a design that is based upon multiple programming languages, the design ~~multiple programming languages~~ comprising a first language portion and a second language portion, ~~in which processing of the second language portion~~ ~~interrupts processing of the first language portion~~, the method comprising:

processing the second language portion of the design causing to cause an interruption of processing for the first language portion of the design, wherein the processing for the first language portion is interrupted to process the second language portion;

determining whether there are one or more waiting requests for processing of the first language portion and indicating a need for processing of the second language portion to call a request processing function at the first language portion;

handling the one or more waiting requests for processing of the first language portion by having processing of the second language portion call a request processing function at the first language portion that has been interrupted, at least one of the one or more waiting requests for processing of the first language portion causes the processing of the first language portion;

executing the request processing function at the first language portion to process the one or more waiting requests; and

generating processing results based upon executing the request processing function and storing the processing results in a computer-readable medium.

19. (Original) The method of claim 18 in which the one or more waiting requests are for accessing data from the first language portion of the design.

20. (Original) The method of claim 18 in which the one or more waiting requests are for debugging the first language portion.

21. (Previously Presented) The method of claim 18, wherein the act of determining whether there are one or more waiting requests for processing of the first language portion is based upon a message sent to a debugger for the processing of the second language portion.
22. (Previously Presented) The method of claim 18, wherein the act of determining whether there are one or more waiting requests for processing of the first language portion is based a periodic check of a request wait queue for the first language portion.
23. (Previously Presented) The method of claim 18, wherein the act of determining whether there are one or more waiting requests for processing of the first language portion is based on whether a threshold number of simulator requests are waiting in a request wait queue.
24. (Previously Presented) The method of claim 18, wherein the request processing function is called by a gdb debugger.
25. (Original) The method of claim 18 in which processing the second language portion comprises debugging the second language portion.
26. (Original) The method of claim 18 in which the request processing function is set up ahead of time to handle anticipated requests.
27. (Currently Amended) A computer program product comprising a volatile or non-volatile computer usable medium having executable code to execute a process for debugging of an ~~electrical electronic design having comprising~~ both an HDL-portion and a general programming language portion, the process comprising:

interrupting a simulator that operates upon the HDL portion of the electronic design to allow for debugging of the HDL portion, the simulator interrupted by an external debugger, ~~the external debugger debugging to debut~~ the general programming language portion of the electronic design;

handling a simulator request with the external debugger for the simulator that is interrupted, the external debugger calling a request processing function at the simulator, the simulator request for simulation of the HDL portion;

executing the request processing function at the simulator to respond to the simulator request; and

generating debug results based upon executing the request processing function and storing the debug results in a computer-readable medium.

28. (Currently Amended) A system for debugging of an ~~electrical~~ electronic design ~~having comprising~~ both an HDL portion and a general programming language portion, comprising:

means for interrupting a simulator that operates upon the HDL portion of the electronic design to allow for debugging of the HDL portion, the simulator interrupted by an external debugger, ~~the external debugger debugging to debug~~ the general programming language portion of the electronic design;

means for handling a simulator request with the external debugger for the simulator that is interrupted, the external debugger calling a request processing function at the simulator, the simulator request for simulation of the HDL portion;

means for executing the request processing function at the simulator to respond to the simulator request, wherein the means for executing the request for processing function comprises a processor; and

means for generating debug results based upon executing the request processing function and storing the debug results in a computer-readable medium.

29. (Currently Amended) A computer program product comprising a volatile or non-volatile computer usable medium having executable code to execute a method for processing of a design that is based upon multiple programming languages, the ~~design multiple programming languages~~ comprising a first language portion and a second language portion, ~~in which processing of the second language portion interrupts processing of the first language portion,~~ the method comprising:

processing the second language portion of the design ~~causing to cause~~ an interruption of processing for the first language portion ~~of the design, wherein the processing for the first language portion is interrupted to process the second language portion;~~

determining whether there are one or more waiting requests for processing of the first language portion and indicating a need for processing of the second language portion to call a request processing function at the first language portion;

handling the one or more waiting requests for processing of the first language portion by having processing of the second language portion call a request processing function at the first language portion that has been interrupted, ~~at least one of the one or more~~

waiting requests for processing of the first language portion causes the processing of the first language portion;

executing the request processing function at the first language portion to process the one or more waiting requests; and

generating processing results based upon executing the request processing function and storing the processing results in a computer-readable medium.

30. (Currently Amended) A system for processing of a design that is based upon multiple programming languages, the design multiple programming languages comprising a first language portion and a second language portion, ~~in which processing of the second language portion interrupts processing of the first language portion~~, the system comprising:

means for processing the second language portion of the design causing to cause an interruption of processing for the first language portion of the design, wherein the processing for the first language portion is interrupted to process the second language portion;

means for determining whether there are one or more waiting requests for processing of the first language portion and indicating a need for processing of the second language portion to call a request processing function at the first language portion;

means for handling the one or more waiting requests for processing of the first language portion by having processing of the second language portion call a request processing function at the first language portion that has been interrupted, at least one of the one

or more waiting requests for processing of the first language portion causes the processing of the first language portion; [[and]]

means for executing the request processing function at the first language portion to process the one or more waiting requests and storing processing results in a computer-readable medium, wherein the means for executing the request for processing function comprises a processor; and[.]

generating processing results based upon executing the request processing function and storing the processing results in a computer-readable medium.

31. (Previously Presented) The computer program product of claim 27 in which the simulator request accesses a portion of the HDL portion.
32. (Previously Presented) The computer program product of claim 27 in which the general programming language portion comprises C, C++, or SystemC code.
33. (Previously Presented New) The system of claim 28 in which the simulator request accesses a portion of the HDL portion.
34. (Previously Presented) The system of claim 28 in which the general programming language portion comprises C, C++, or SystemC code.
35. (Previously Presented) The computer program product of claim 29, wherein the request processing function is called by a gdb debugger.

36. (Previously Presented) The computer program product of claim 29 in which the one or more waiting requests are for debugging the first language portion.
37. (Previously Presented) The system of claim 30, wherein the request processing function is called by a gdb debugger.
38. (Previously Presented) The system of claim 30 in which the one or more waiting requests are for debugging the first language portion.